

# ElFys QPD-385-Y (H)

## Quadrant photodetector datasheet



### 1. Product Description and Key Features

The 4-quadrant photodetector from ElFys consists of black silicon photosensitive surface in circular geometry with four individual pixels. Product patent information can be found at <https://www.elfys.fi/index.php/technology/patent/>. The product is suitable for highly demanding Vis and NIR applications, where accurate laser spot positioning is needed. The 4-quadrant photodetector is optimized for 1064 nm wavelength. Series contains two models, one with (denoted by H in the product name) and one without heater.

Absolute maximum ratings			
Parameter	Min	Max	Unit
Storage temperature	-55	125	°C
Operation temperature	-40	85	°C
Operation voltage		250	V
Peak DC current		10	mA

### 2. Electrical and Optical Performance

Electro optical characteristics at 25 °C, if not otherwise indicated

Parameter	Condition	Min	Typ	Max	Unit
Active area (per element)		38.5			mm <sup>2</sup>
Overall active area diameter		14			mm
Case bottom to active surface distance		5.0			mm
Active surface to glass window distance		200			µm
Gap	between elements	70			µm
Dark current	bias 140 V, per element		5	30	nA
Dark current temperature coefficient	bias 140 V, per element		1.11		times/ °C
Responsivity	bias 140 V, wavelength 1064 nm	0.5	0.64		A/W
Breakdown voltage	reverse current 2 µA	250			V
Capacitance	bias 140 V, per element		15	22	pF
Rise time	bias 180 V, wavelength 1064 nm		12		ns
Crosstalk	bias 180 V, load resistance 1000 Ohm, wavelength 1064 nm		2		%
Heating resistor*	maximum bias voltage 23V**		30		Ω
Temperature sensor resistance*	PTC, 2750±250 ppm/°C at 20 °C	975	1 000	1025	Ω
NEP	bias 140 V, wavelength 1064 nm		6.30E-14		W/√Hz
FOV			±75		°

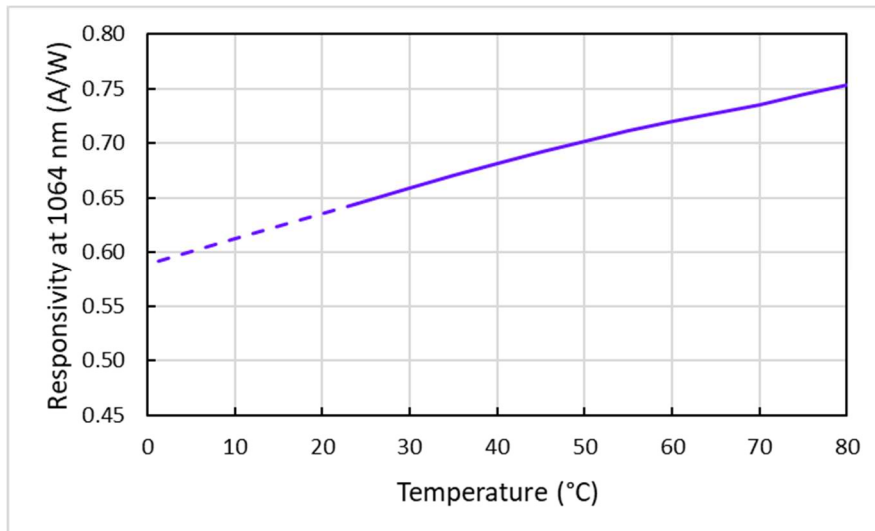
\*11-pin TO-can with heater, model QPD-385-YH

\*\*typical heating time from 25 to 80 °C is 6 seconds

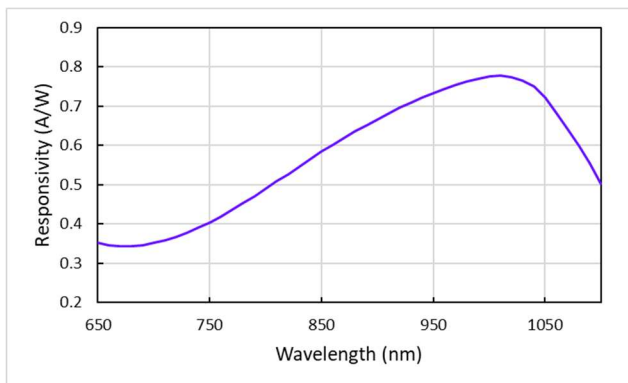


### 3. Spectral Response

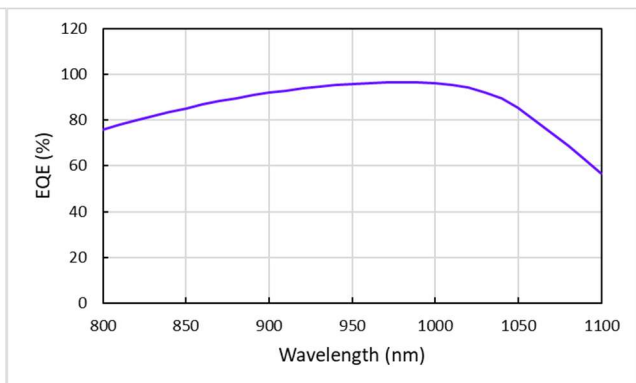
Responsivity as a function of temperature at 1064 nm



Responsivity (at 25 °C)

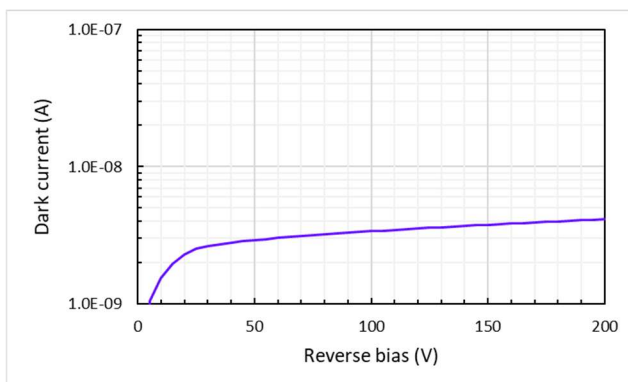


External quantum efficiency (at 25 °C)

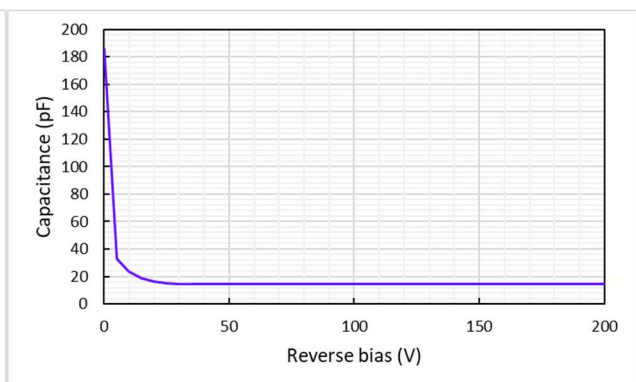


### 4. Dark current and capacitance vs reverse bias

Dark current (at 25 °C)

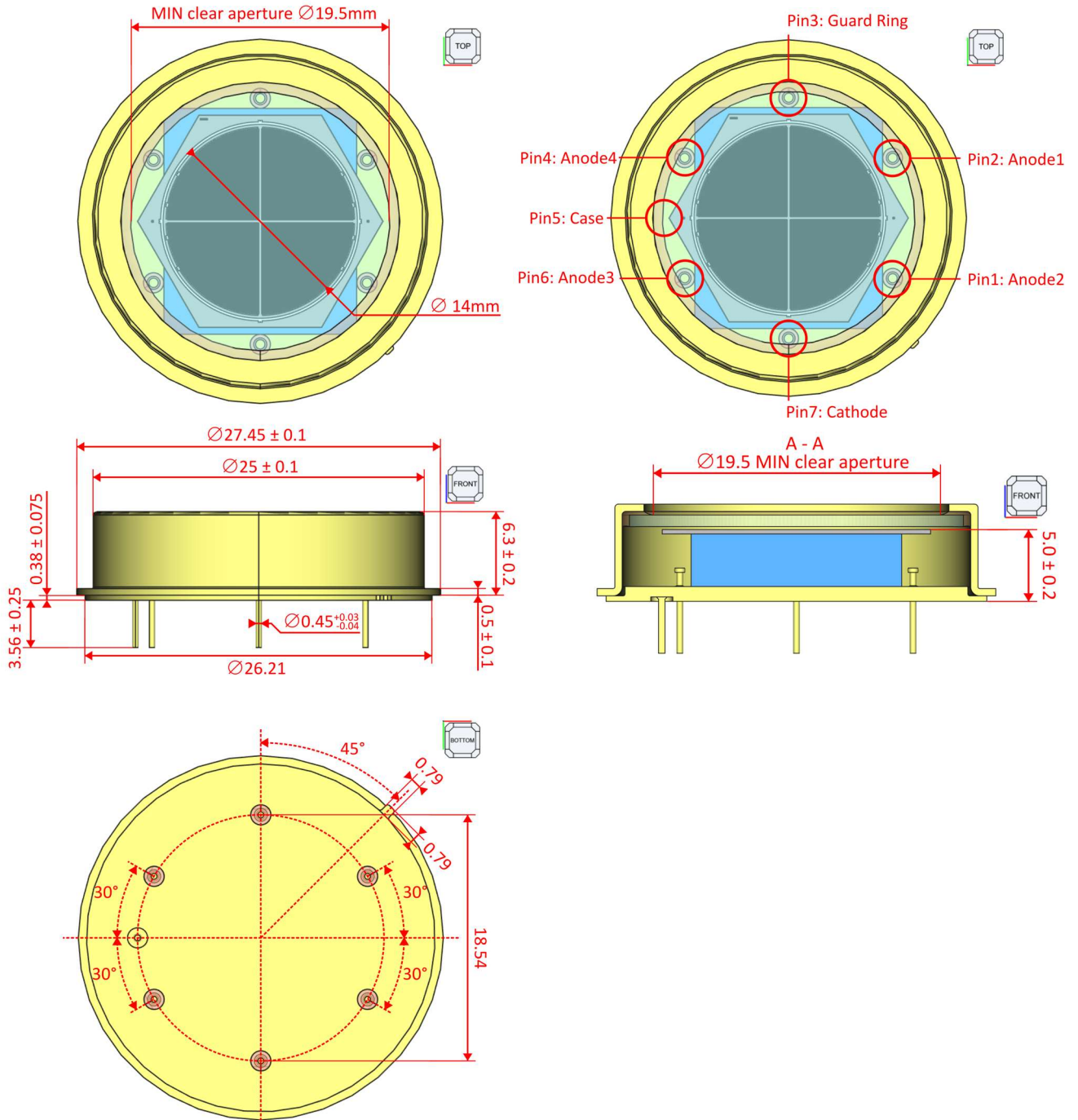


Capacitance (at 25 °C)





TO-can with 7-pins, model QPD-385-Y, without heater



Elfys, Inc. reserves the right to change product specification without prior notice.

